

ERGONOMIC UPDATES

Cumulative Trauma

Using any motion to do your job once or twice may not cause problems. But when you use the same motion repeatedly for a long time, it can cause strain, discomfort, illness and disability and may require corrective surgery. These problems are called cumulative trauma – a condition that accumulates over time.

What Causes It?

Cumulative Trauma can be caused by:

- Using a tool that can cause stress and strain to muscles, bones, and nerves
- Repeating the same motion with a tool, a machine or a piece of equipment
- Working at a workstation that needs to be redesigned, or working in a posture that's uncomfortable
- Working in a way that causes strain on your wrist, arms, fingers, back, torso or shoulder
- Taking breaks in repetitive motion

Prevention

Cumulative trauma can be prevented by:

- Using the right tool for the job
- Changing the way your workplace is arranged
- Adapting the job to the worker, instead of forcing the worker to adapt to the job

A Twist of the Wrist

Hands and wrists can do many complex tasks. They use an intricate network of nerves, tendons, ligaments, bones and blood vessels. Any of these can be irritated or strained by:

- Vibrating tools and equipment
- Repetitive, twisting hand movements
- Jobs where your hand and wrist must exert force in an awkward position
- Exertion in combination with any of these

Problem

Carpal tunnel syndrome

Cause

Pressure on the nerve that runs through the carpal tunnel in the wrist. Can be caused by bending or twisting the wrist, especially under force.

Symptoms

Pain, numbness, tingling, burning, weakness in the hand and fingers. Sometimes symptoms happen only at night.

Treatment

- Eliminate the cause
- Rest the wrist
- Anti-inflammatory drugs
- Possible surgery for severe or advance problems

Problem

Tendonitis (also called tennis elbow, bursitis or tenosynovitis)

Cause

Overuse of tendons in arm, wrist or fingers

Symptoms

Pain, swelling, tenderness, redness in hand, wrist, forearm, weakness in hand and fingers.

Treatment

- Eliminate the cause
- Rest
- Use heat if recommended by a physician

Hands and Fingers

Your hands and fingers can be irritated by repeated strain.

Problem

White finger (also called Reynaud's Phenomenon)

Cause

Repeated use of vibrating tools, such as hammers, chain saws, rotary grinders and sanding machines. Blood vessels in the hand can't get oxygen and may die.

Symptoms

Numbness and loss of control in the fingers and hands; tingling; skin turns white; loss of sensitivity to heat, cold and pain.

Treatment

No effective treatment, except to stop exposure to the cause.

Problem

Trigger finger syndrome

Cause

Repeated flexing of finger with pressure. For example, using trigger-operated hand tools and pneumatic tools.

Symptoms

Pain, swelling, tenderness, weakness in fingers and hand.

Treatment

- Eliminate the cause
- Rest
- Use heat if recommended by a physician

Problem

Hammer syndrome

Cause

Using the butt of the hand to strike objects

Symptoms

Painful lump in heel of the hand near the base of thumb; numbness in fingers, loss of sensitivity to cold.

Treatment

- Eliminate the cause
- Rest
- Use heat if recommended by a physician

Arming Yourself

Here's how poorly designed workstations can cause problems in your arms and shoulders.

- Working with your arms out-stretched or above shoulder height can cause pain and muscle fatigue.
- Repetitive elbow and shoulder movements can injure tendons and nerves and cause "tennis elbow." This is a nerve compression problem, similar to carpal tunnel syndrome.
- Joints can be hurt by continued reaching or straining.

Workstation Design

The ideal workstation is one where:

- You seldom have to raise your arms above elbow height
- You can keep your arms low and elbows close to your body
- Work repetition is reduced
- You can use tools and clamping devices (such as well-designed pliers or a vise), instead of holding objects with pressure from your hand and other muscles
- You can use postures that let you use your muscles without straining them or your joints or tendons
- There's plenty of room for tall workers; shorter workers can be accommodated with devices such as foot rests and adjustable seats

Protection Tips

You owe it to yourself and your family to safeguard yourself against cumulative trauma. Keep these safety pointers in mind.

- Make sure you use tools, machines or equipment in a way that won't cause strain over time.
- Note any strain on your wrist, arms, fingers, back, torso or shoulder caused by your work. Report it to your Ergonomics Specialist or safety coordinator or to the medical department.
- Search for ways to work that will accommodate your needs. Don't try to force your work patterns to fit the job.
- Cumulative trauma happens over time. Start now to protect yourself.

REMEMBER

APHIS wants to help you work without the discomfort and pain of cumulative trauma. Look for ways you can work safely and comfortably, without straining your wrist, arms, shoulders, torso, or back. It's part of your job.

***For more information on cumulative trauma and or other ergonomic topics, please contact Ginger E. Dorsey, APHIS Ergonomics Specialist, at ginger.e.dorsey@aphis.usda.gov.**